

REMARKS

Independent claim 2 has been amended to limit the ion-accelerated, wear-resistant, electrically conductive coating to a circular, v-shaped, electrically conductive coating, having a resistivity of less than 10^{-4} . Dependent claim 3 has been amended to limit slip-rings to circular slip-rings. Dependent claim 4 has been amended to limit slip-rings to circular slip-rings and to limit an ion-accelerated, wear resistant, electrically conductive coating to a circular, v-shaped, ion-accelerated, wear resistant, electrically conductive coating.

An electrically conductive circular slip-ring, that has a circular, v-shaped, ion-accelerated, wear-resistant, electrically conductive coating, having a resistivity of less than 10^{-4} Ohm-cm, the coating containing simultaneously ion deposited, contiguous, metal-ion-accelerated metal atoms and carbon-ion-accelerated diamond-like carbon atoms, on the circular, v-shaped outer surface of the electrically conductive circular slip-ring, is not taught, and is not suggested, by U. S. Patent 5,786,068.

The claimed coating on the slip-rings has a resistivity of less than 10^{-4} Ohm-cm. The '068 patent does not show or suggest a coating having such a very low resistivity, for use on slip-rings.

Figure 2 of the '068 patent shows resistivities of coatings going down toward a minimum resistivity of between 10^{-3} Ohm-cm and 10^{-4} Ohm-cm. **The slop at the top of the curve of Figure 2 shows the curve approaching a minimum resistivity of 10^{-4} Ohm-cm.**

A claimed coating, having a resistivity of less than 10^{-4} Ohm-cm is not taught and is not suggested by Figure 2 of the '068 patent. Figure 2 indicates the level of ordinary skill in the art. Claims 2, 3 and 4 claim different and unexpected resistivity for applicants' coating, than suggested by Figure 2 of the '068 patent.

Further, the first sentence of the first paragraph of column 5 of the '068 patent is technically highly misleading, since 10^{-4} Ohm-cm is a lower resistivity than 10^{15} Ohm-cm. A resistivity of 10^{15} Ohm-cm is not a metallic state resistivity, but is, instead, a very high resistivity. In part due to this misleading teaching in the '068 patent, the use of applicants' coating, having a resistivity of less than 10^{-4} Ohm-cm on a slip-ring, is not suggested by the '068 patent. There is no teaching or suggestion of making a coating having a resistivity of less than 10^{-4} Ohm-cm, on a slip-ring, in the '068 patent.

A standard value for resistivity of pure copper is 1.68×10^{-6} Ohm-cm. A coating having a high percent of copper is taught by applicants. A coating, taught by applicants, and having a high percentage of copper, will have a resistivity of less than 10^{-4} Ohm-cm.

One would not be lead by the teachings of the '068 patent to coat slip-rings with a coating having a resistivity of less than 10^{-4} Ohm-cm. The '068 patent leads one away from applicants' claimed rotor and coated slip-rings.

The '068 patent shows making dielectric coatings and higher resistivity coatings than claimed by applicants, on a flat substrate. The '068 patent teaches coating each flat substrates with a dielectric coating and higher resistivity coating than claimed by applicants. In the '068 patent, a planar dielectric coating and higher resistivity coating than claimed by applicants, is formed on each flat substrate.

The '068 patent teaches away from the rotor and coated slip-rings of amended claims 2, 3 and 4, due to formation of a planar dielectric coating and higher resistivity coating than claimed by applicants, on each flat substrate, rather than having a circular, v-shaped, electrically conductive coating, having a resistivity of less than 10^{-4} Ohm-cm, on each circular slip-ring.

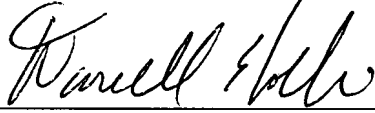
Dorfman et al. does not teach and does not suggest a rotor having circular v-shaped, electrically conductive coatings, having resistivity of less than 10^{-4} on slip-rings. The presently claimed circular, v-shaped, electrically conductive coatings on electrically conductive circular slip-rings, is not disclosed and is not obvious from Dorfman et al.

Further, there is no teaching or suggestion in U. S. Patent 5,786,068 for one to rotate electrically conductive circular slip-rings around an axis that is parallel to adjacent carbon-ion and metal-ion sources, while accelerating carbon ions and metal ions toward the rotating electrically conductive circular slip-rings, in order to produce circular, v-shaped, electrically conductive coatings on the electrically conductive circular slip-rings. In the '068 patent there is no teaching or suggestion to form such a circular, v-shaped, electrically conductive coating on a v-shaped outer surface of each electrically conductive circular slip-ring.

An Abstract Of The Disclosure is presently being filed.

It is respectfully submitted that the present patent application is now in condition for allowance and early allowance is respectfully requested. Entrance of the present amendment is respectfully requested for allowance or appeal purposes.

Respectfully Submitted,

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